BL 22

CROWN® JAPAN

SERVICE MANUAL

Portable Compact Disc Player

CD-70(US)
CD-70(UK)
CD-70(E)
CD-70(AS)
CD-70(X)

SPECIFICATIONS

CD SYSTEM

Function : Multifunction LCD Display, Pause, Skip and Repeat (one/all)
System : Compact disc digital audio system
Pick-up : Semi-conductor laser 780 mm(wave length) 3-beam
Output level at CD out : 1.5 V (50K Ω)
Frequency Response : 16 - 20000 Hz

GENERAL

Power Source AC :
CD-70(US) : 120 V 60 Hz
CD-70(UK) : 240 V 50 Hz
CD-70(E) : 220 V 50 Hz
CD-70(X) : 115/230 V 50/60 Hz
CD-70(AS) : 240 V 50 Hz

Dimensions ..... Approx. 220(W) x 62(H) x 170(D) mm
Weight ..... Approx. 950 g

NOTE : All specifications and cabinet design are subject to change without notice for improvement.

DISASSEMBLY

1. Removal of Bottom Cabinet
   Remove the 4 screws (Nos. 1 through 4) shown in Fig. 1.

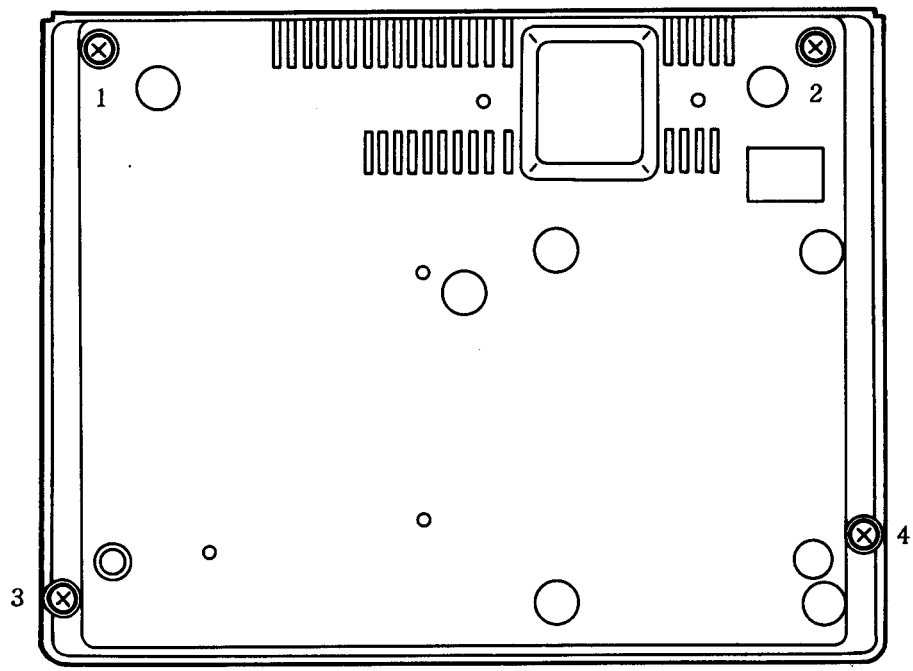


Fig. 1

2. Removal of CD Mechanism
   Remove the 4 screws (Nos. 5 through 8) shown in Fig. 2.

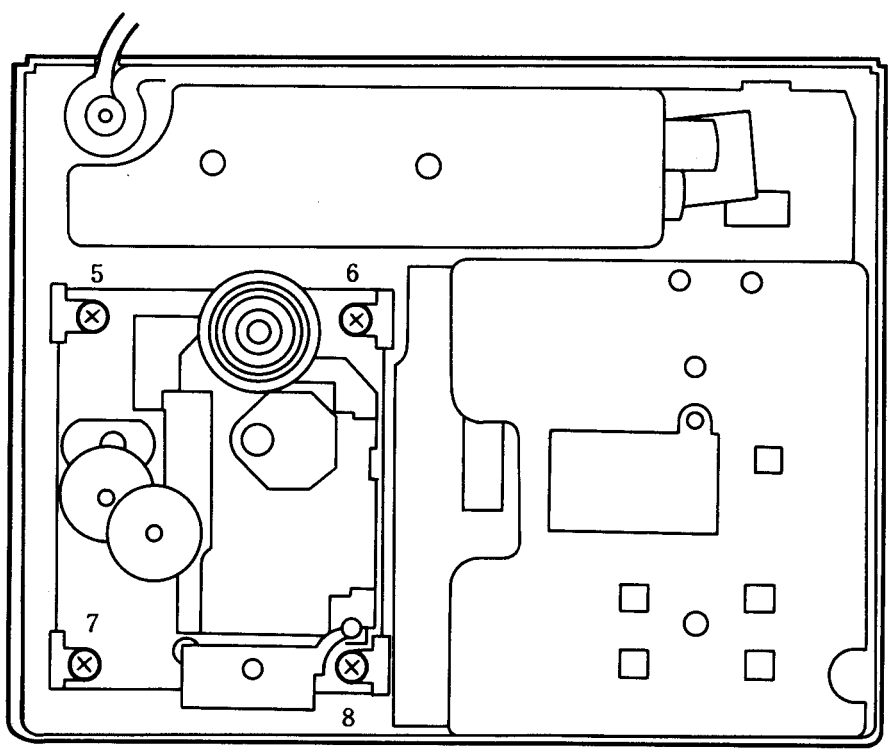


Fig. 2

ADJUSTMENT

Adjusting Conditions

Power Source Voltage : D.C. 9 V
Test disk : SONY TYPE 4 or EIAJ CD-1
Unless otherwise expressly stipulated, the switches should be set at the following conditions :

COUNT Switch	: CIFI
ASY Switch	: OPEN
TE Switch	: SHORT
FE Switch	: SHORT
SIGNAL Switch	: FG
TEST Switch	: OFF
S601	: OPEN

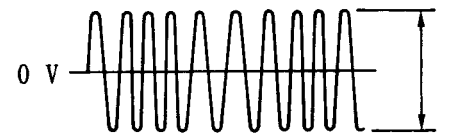
Adjustment

1. Adjustment of VCC free-run frequency
   Set ASY Switch at SHORT and COUNT Switch at PLCK.
   At TEST POINT ②, measure the frequency with the frequency counter.
   Turn VR605 so that the frequency is adjusted to 4.3218 MHz.
   (Speficications : 4.3218 MHz ± 10 KHz)

2. FOCUS SEARCH Checking
   Turn off the power source once and turn on TEST Switch. Turn on the power source so that the microcomputer is set at TEST MODE.
   Under the TEST MODE, push the REPEAT KEY of Control PCB once, and check that the lens comes up so that FOCUS ON state is present. Press the REPEAT KEY once again and check that the lens goes down so that FOCUS DOWN state is present.
   When the REPEAT KEY is pressed for the third time, the lens GOES OFF so that FOCUS OFF state is present.

3. FOCUS BIAS Adjustment
   Under the TEST MODE and when the PLAY/PAUSE KEY of control PCB is pressed after having set the DISK, FOCUS SEARCH goes on and MUTE PLAY state is present.
   At TEST POINT ④, observe the eye pattern and adjust VR602 so that the optimum jitter point is attained on the jitter meter.
   (Specification : 30 ns or less)

4. E. GAIN (TE OFFSET) Adjustment
   Following the above state, when the PROGRAM KEY is pushed once, the SLED/TRACKING SERVO is turned off, and it is turned on again when the PROGRAM KEY is pushed once again. Now, under the SLED/TRACKING SERVO OFF state and at TEST POINT ⑤, check the TE output waveform (with the oscillograph DC coupling). Turn VR601 so that the waveform attains horizontal symmetry centering on the 0 V line.



5. In the state just after 3. FOCUE BIAS Adjustment, set the FE Switch at AMP and SIGNAL Switch at FG.
   Apply 1 KHz -20 dB signal at TEST POINT ⑥, and measure with a VTVM the output of FGA and FGB, respectively, at TEST POINT ⑧. Adjust by turning VR603 so that output levels of FGA and FGB are made equal.
   (Specifications : The level difference between FGA and FGB shall be within 0.5 dB.)

6. TRACKING GAIN Adjustment
   In the state just after 3. FOCUS BIAS Adjustment, set the TE Switch at AMP and SIGNAL Switch at TG.
   Apply 1 KHz -20 dB signal at TEST POINT ⑥, and measure with a VTVM the output of FGA and FGB, respectively, at TEST POINT ⑦. Adjust by turning VR604 so that output levels of TGA and TGB are made equal.
   NOTE: Turn off the power switch once before releasing TEST MODE and stopping MUTE PLAY.
   (Specifications : The level difference between FGA and FGB shall be within 0.5 dB.)

7. D/A OUT LEVEL Checking
   Turn on power switch after setting S601 at shortcircuited state. Set the disk and open S601.
   Check at this time from the LCD display that TOC has been read-out.
   Play back the 1 KHz 0 dB signal and measure the output voltage at TEST POINT ①.
   Check at this time that the output level is -10 dB.
   (Specifications : -10 dB ± 1 dB)

8. CD OUT LEVEL Checking
   In the status obtained from the above D/A OUT LEVEL Checking, measure the output voltage at TEST POINT ①.
   (Specifications : 1.5 V ± 1 dB)

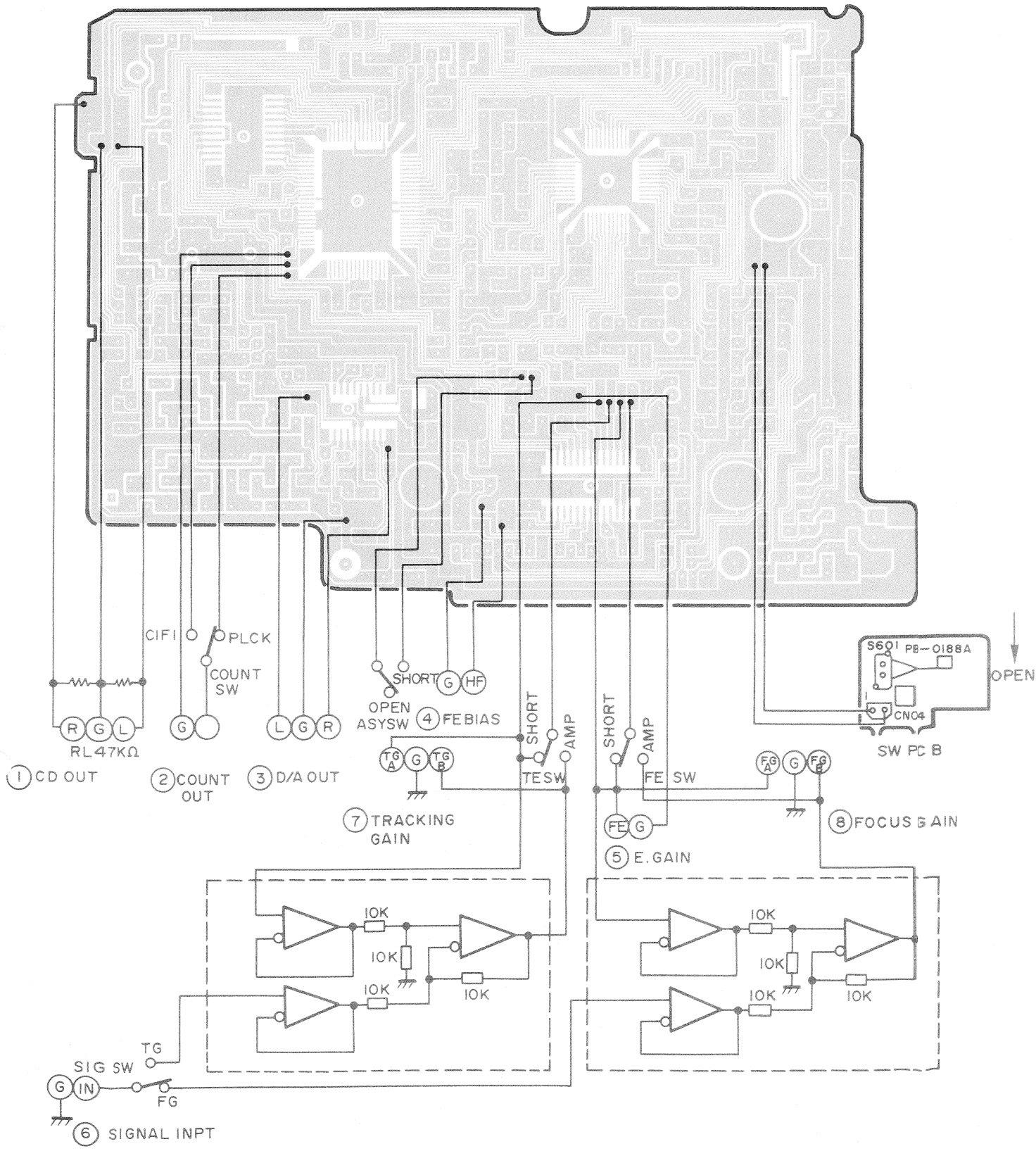
9. Error Count Check

In the status obtained from the afore-mentioned D/A OUT LEVEL Checking, set COUNT Switch at CiFi.

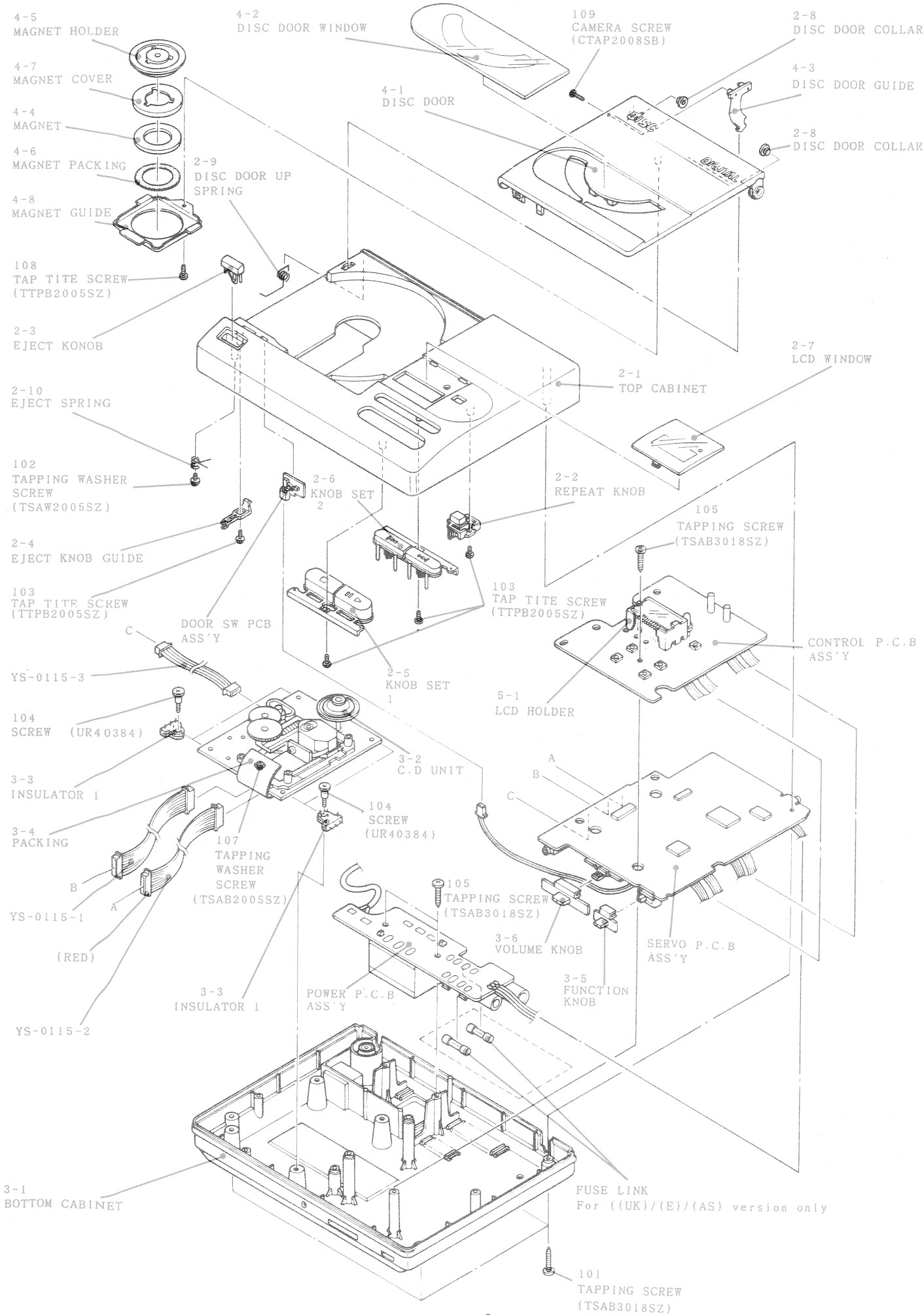
At TEST POINT ②, measure the error count with the frequency counter. Be careful for the measurement that no flaw nor dirt exists on the disk.

(Specifications : 50 count or less)

Caution : Each time after checking or adjustment, each two terminals of TE and FE should be shortcircuited by bridging them with solder.


CIFI
PLCK
COUNT SW
SHORT
G
HF
OPEN
ASYSW
4 FEBIAS
SHORT
AMP
TESW
SHORT
AMP
FE SW
S601 PS-0188A
OPEN
CN04
SW PC B
R G L
RL 47KΩ
1 CD OUT
G
2 COUNT OUT
L G R
3 D/A OUT
TG A G TG B
7 TRACKING GAIN
FE G
5 E. GAIN
FG A G FG B
8 FOCUS GAIN
10K
10K
10K
10K
10K
10K
TG
SIG SW
G IN
FG
6 SIGNAL INPT

EXPLODED VIEW



REPLACEMENT PARTS LIST

MAIN COMPONENT ASS'Y

NAME	Q'TY	CD-70(US)	CD-70(UK)	CD-70(E)	CD-70(X)	CD-70(AS)
PLASTIC BAG	1	CC40008-02	←	←	←	←
PLASTIC BAG	1	CC40008-29	←	←	←	←
STYRENE FOAM	2	UR20151	←	←	←	←
DISPLAY BOX	1	CC40006-330	←	←	←	←
MASTER CARTON	1/10	CC40007-109	←	←	←	←
INSTRUCTION LEAFLET	1	R-1381A	←	←	←	←
SAFETY INSTRUCTION	1	CN-149	--	--	--	--
WARRANTY CARD	1	B-230	--	--	--	--
SERIAL NUMBER LABEL	1	UR40164	--	--	--	--
SAFETY SEAL	1	--	R41845	--	--	--
DBP LABEL	1	--	--	UR40205-06	--	--

FINAL ASS'Y

REF. NO.	NAME	Q'TY	CD-70(US)	CD-70(UK)	CD-70(E)	CD-70(X)	CD-70(AS)
101	TAPPING SCREW	4	TSAB3018SZ	←	←	←	←
	NAME LABEL	1	CR40025-601	CR40025-612	CR40025-611	CR40025-608	CR40025-613
	DATE LABEL	1	UR40163	--	--	--	--
	DHHS LABEL	1	UR40302-01	--	--	--	--
	CLASS I LABEL	1	--	UR40311-01	←	--	UR40311-01
	DBP SEAL	1	--	--	UR40204	--	--
	WIRE LIST	1	YS-0115	←	←	←	←

REPLACEMENT PARTS LIST

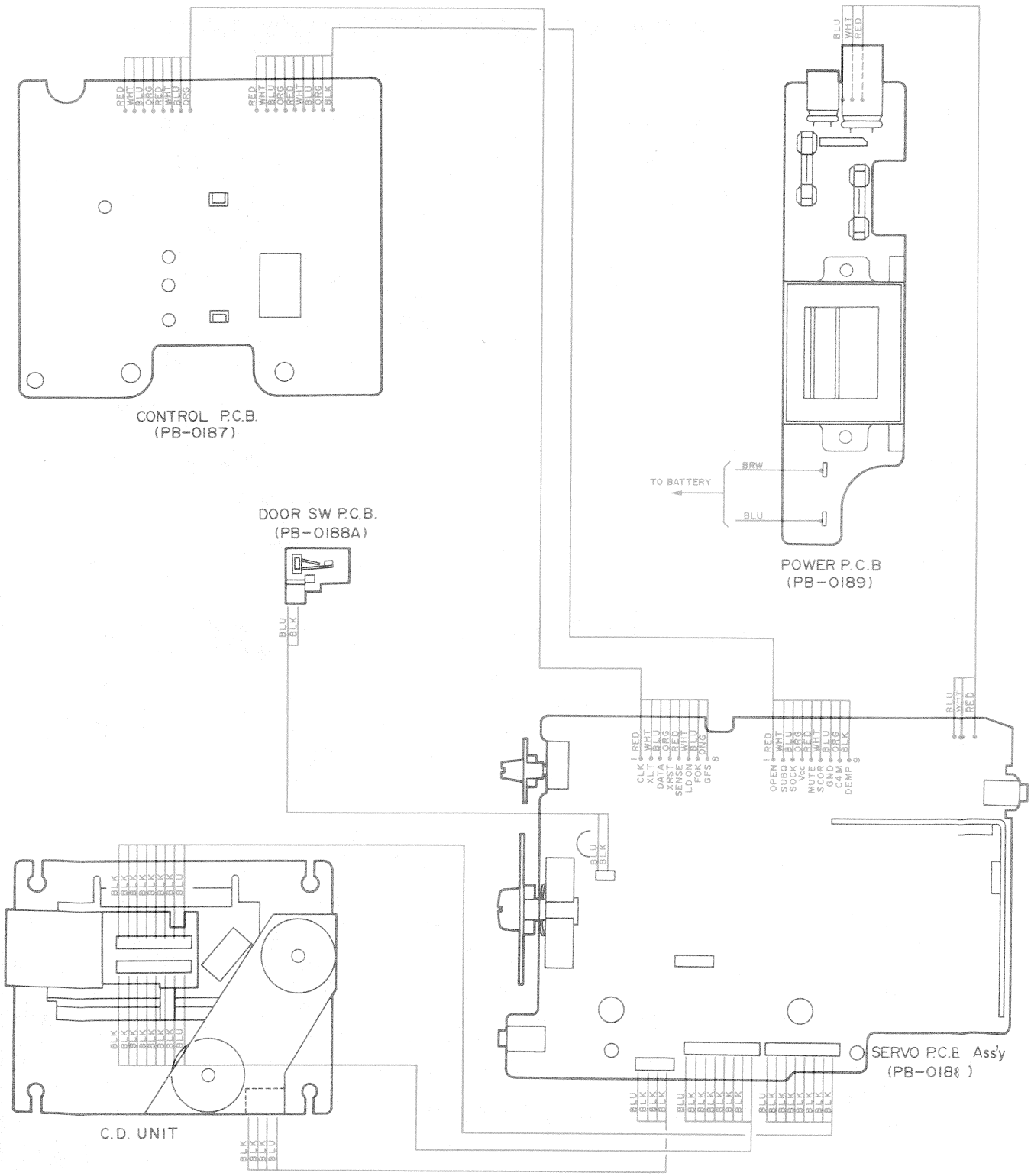
TOP CABINET ASS'Y

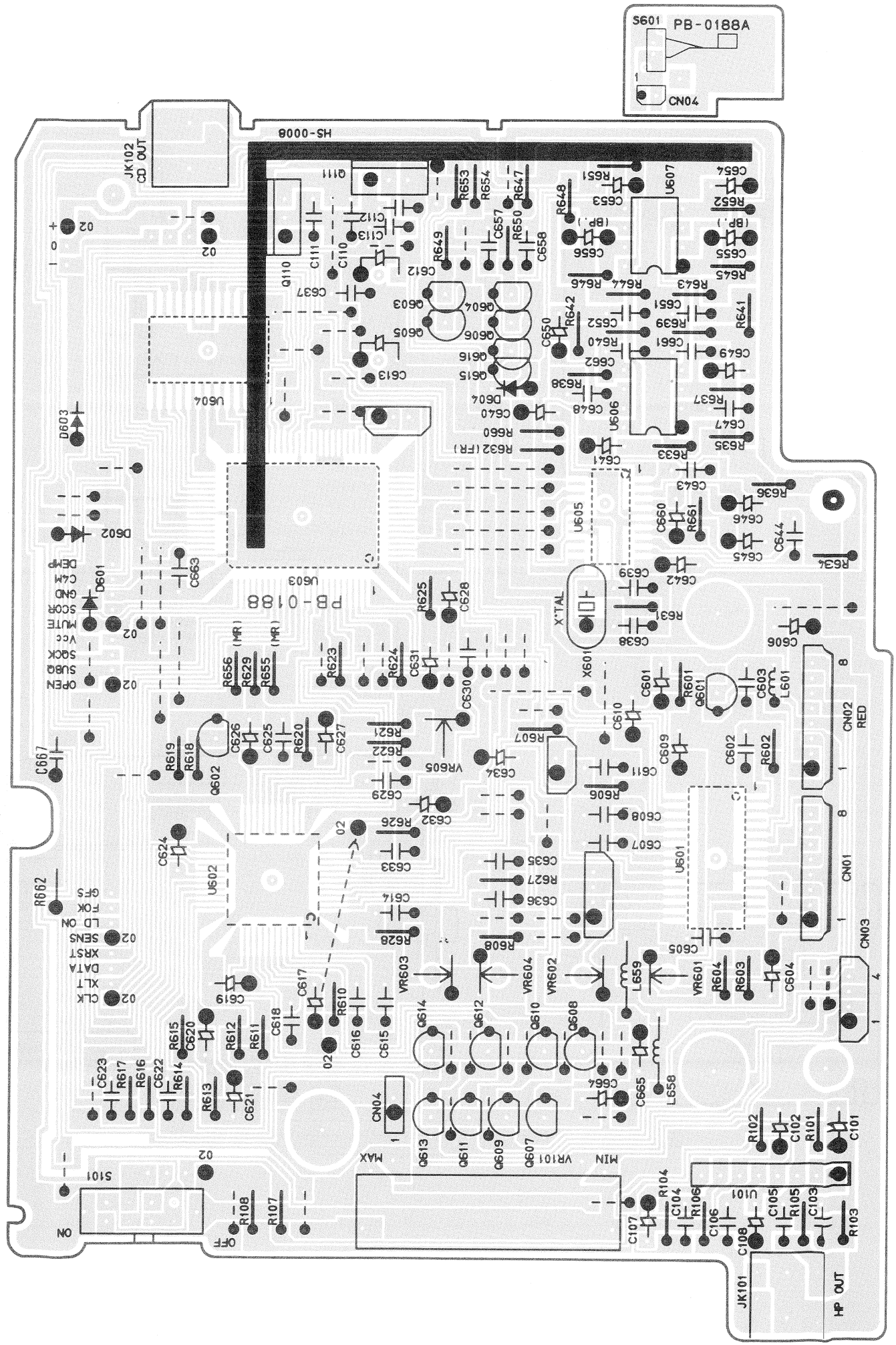
REF. NO.	NAME	Q'TY	PARTS NO.	REMARKS
2-1	TOP CABINET	1	UR10064-01	
2-2	REPEAT KNOB	1	UR40382-01	
2-3	EJECT KNOB	1	UR40379-01	
2-4	EJECT KNOB GUIDE	1	UR40380	
2-5	KNOB SET 1	1	UR40400-01	
2-6	KNOB SET 2	1	UR40401-01	
2-7	L C D WINDOW	1	UR40377-01	
2-8	DISC DOOR COLLER	2	UR40105-01	
2-9	DISC DOOR UP SPRING	1	UR40378	
2-10	EJECT SPRING	1	UR40381	
102	TAPPING WASHER SCREW	2	TSAW2005SZ	Eject spring 1 Eject knob guide 1 (ϕ 6)
103	TAP TITE SCREW	3	TTPB2005SZ	Repeat knob 1 Knob set 1, 2 2

BOTTOM CABINET ASS'Y

REF. NO.	NAME	Q'TY	CD-70(US)/(UK)/(AS)	CD-70(E)	CD-70(X)	
3-1	BOTTOM CABINET	1	UR10065-1-01	←	UR10065-2-01	
3-2	C.D UNIT	1	MU-0006	←	←	
3-3	INSULATOR 1	4	UR40253	←	←	
104	SCREW	4	UR40384	←	←	
3-4	PACKING	1	UR40437	←	←	
3-5	FUNCTION KNOB	1	UR40031-05	←	←	
3-6	VOLUME KNOB	1	UR40006-01	←	←	
105	TAPPING SCREW	3	TSAB3018SZ	←	←	
106	TAPPING WASHER SCREW	2	TSAW3010SZ	←	←	
107	TAPPING WASHER SCREW	1	TSAW2005SZ	←	←	

LEAD CONNECTION




S601
PB-0188A
CN04
HS-0008
JK102
CD OUT
PB-0188
JK101
HP OUT
CN01
CN02
CN03
RED
ON
OFF
MAX
MIN
X'TAL
OPEN
SUBQ
SQCK
MUTE
Vcc
SCOR
GND
C4M
DEMP
DATA
XRST
SENS
FOK
GFS
LD ON
XLT
CLK

REPLACEMENT PARTS LIST

SERVO P.C.B ASS'Y

REF. NO.	PARTS NO.	NAME	Q'TY	REMARKS
	M5216L	I. C	1	U101
	CXA1081M	I. C	1	U601
	CXA1082AQ	I. C	1	U602
	CXD1130Q	I. C	1	U603
	CXK5816M-15	I. C	1	U604
	CXD1140BM	I. C	1	U605
	BA4558	I. C (DIP)	2	U606, 607
	2SA854Q or R	TRANSISTOR	1	Q601
	2SB909MQ or R	〃	4	Q607, 609, 611, 613
	2SD1225MQ or R	〃	4	Q608, 610, 612, 614
	2SC1740SS	〃	4	Q602, 603, 604, 616
	DTA144ES	〃	1	Q615
	DTC114TS	〃	2	Q605, 606
	M5F7805	〃	1	Q110
	M5F7905	〃	1	Q111
	XT-0005	CRYSTAL	1	X601
	1SS133 or MA165	DIODE	4	D601, 602, 603, 604
	VR-0040-20K	SEMI FIXED RESISTOR	3	VR601, 603, 604
	VR-0040-50K	〃	1	VR602
	VR-0053-2.2K	〃	1	VR605
	VR-0014	SLIDE VOLUME	1	VR101
	JK-0012	HEADPHONE JACK	1	JK101 (Green)
	JK-0012	HEADPHONE JACK	1	JK102 (CD out)
	SW-0091	SLIDE SWITCH	1	S101 (Power)
	PC-0020-4P	PLUG CONNECTOR	1	CN03
	PC-0020-8P	〃	1	CN01
	PC-0020-8P-X	〃	1	CN02 (X :Red)
	HS-0008	HEAT SINK	1	
	TTSB2606SZ	TAP TITE SCREW	2	
		INSULATOR SHEET	1	30 x 30 mm

REPLACEMENT PARTS LIST

SERVO P.C.B ASS'Y

REF. NO.	PARTS NO.	NAME	Q'TY	REMARKS
	CVAR6M-100	A. CAPACITOR	7	C601, 624, 634, 640 C645, 653, 654
	CVAR6M-220	〃	2	C664, 665
	CVAR6M-470	〃	2	C612, 613
	CVA10M- 22	〃	2	C620, 628
	CVA10M- 33	〃	3	C606, 609, 646
	CVA10M- 47	〃	3	C604, 619, 632
	CVA10M-4R7-X	〃	2	C655, 656 (X =BP)
	CVA10M-100	〃	2	C107, 108
	CVA16M- 10	〃	5	C641, 642, 649, 650 C660
	CVA50M-4R7	〃	3	C101, 102, 617
	CVA50M-R22	〃	1	C621
	CVA50M-R47	〃	3	C610, 626, 631
	CVA50M- 1	〃	1	C627
	LA-0008- 10u	COIL	1	L601 (10uH)
	LA-0012- 68u	COIL	2	L658, 659
	CVM50K-102	M. CAPACITOR	2	C603, 629
	CVM50K-152	〃	2	C647, 648
	CVM50K-222	〃	2	C614, 635
	CVM50K-472	〃	1	C625
	CVM50K-103	〃	4	C602, 608, 611, 623
	CVM50K-153	〃	1	C622
	CVM50K-183	〃	1	C616
	CVM50K-223	〃	1	C633
	CVM50K-273	〃	2	C657, 658
	CVM50K-333	〃	3	C605, 607, 630
	CVM50K-473	〃	1	C636
	CVL50J-104	TF. CAPACITOR	2	C615, 618
	CHC50Z-223F	C. CAPACITOR	3	C637, 663, 667
	CVC50K-681B	〃	2	C651, 652
	CVC50J-361SL	〃	2	C661, 662
	CVC50J-150CH	〃	2	C103, 104
	CVC50J-220CH	〃	2	C638, 639
	CVP50J-222	PP. CAPACITOR	2	C643, 644
	CVR25M-104	R. CAPACITOR	4	C110, 111, 112, 113
	CVR25K-223	〃	2	C105, 106
	RHD08J-220	CN. RESISTOR	1	R601
	RHD08J-470	〃	3	R604, 651, 652
	RHD08J-391	〃	2	R649, 650
	RHD08J-102	〃	2	R647, 648
	RHD08J-152	〃	1	R620
	RHD08J-272	〃	3	R643, 644, 660
	RHD08J-332	〃	1	R622

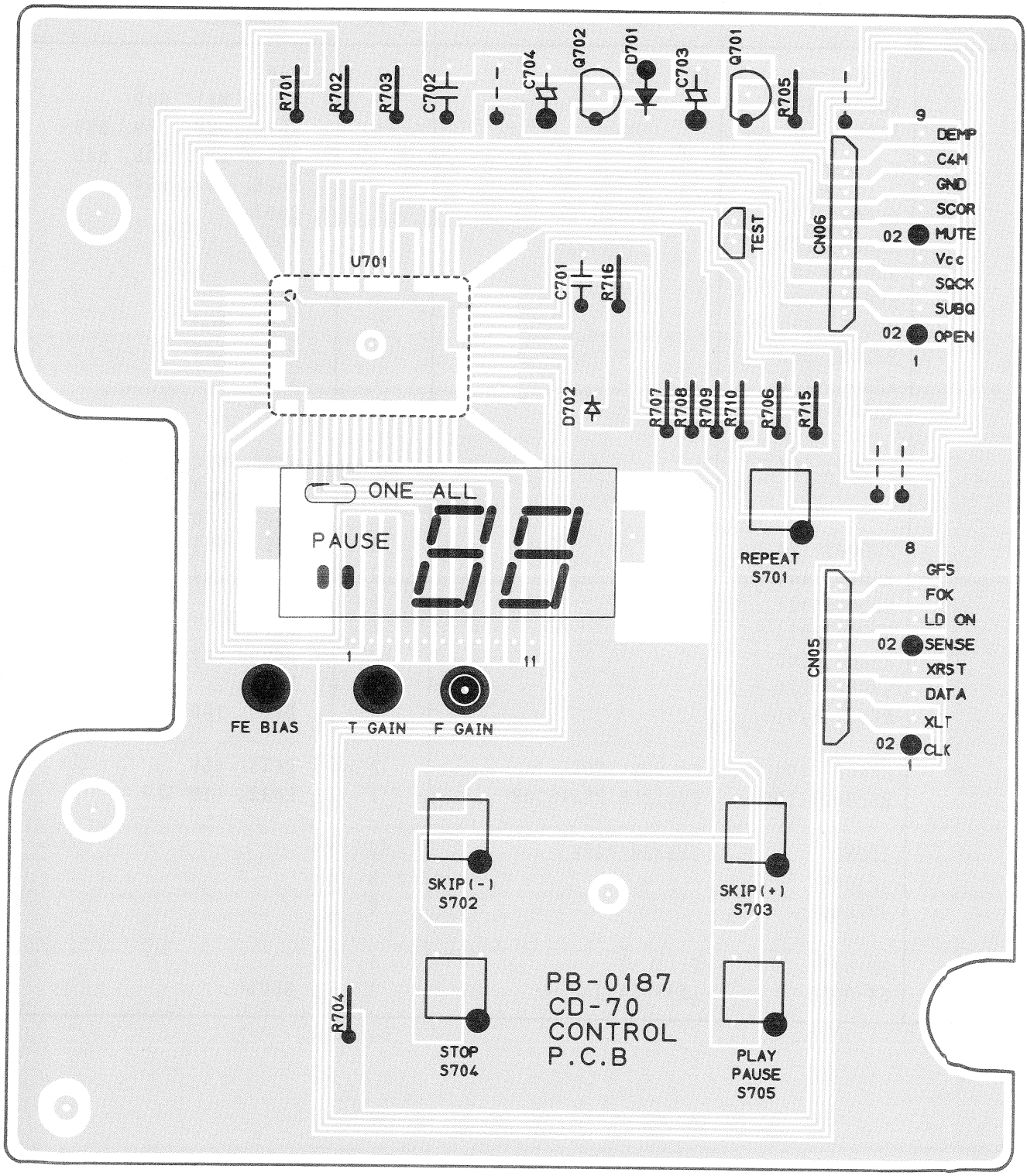
REPLACEMENT PARTS LIST

SERVO P.C.B ASS'Y (Cont'd)

REF. NO.	PARTS NO.	NAME	Q'TY	REMARKS
	RHD08J-562	CN. RESISTOR	1	R661
	RHD08J-822	〃	3	R615, 641, 642
	RHD08J-103	〃	11	R619, 628, 629, 635 R636, 637, 638, 645 R646, 653, 654
	RHD08J-113	〃	1	R607
	RHD08J-123	〃	1	R608
	RHD08J-153	〃	1	R613
	RHD08J-203	〃	1	R624
	RHD08J-223	〃	2	R602, 603
	RHD08J-333	〃	2	R101, 102
	RHD08J-753	〃	1	R626
	RHD08J-823	〃	1	R612
	RHD08J-104	〃	11	R606, 610, 611, 616 R618, 623, 633, 634 R639, 640, 662
	RHD08J-124	〃	2	R614, 621
	RHD08J-154	〃	2	R103, 104
	RHD08J-474	〃	1	R627
	RHD08J-514	〃	1	R617
	RHD08J-105	〃	2	R625, 631
	RVD04J-270	〃	1	R108
	RVD04J-101	〃	3	R105, 106, 107
	RHN08G-104	M. RESISTOR	2	R655, 656
	RS-0001-100	FUSIBLE RESISTOR	1	R632 (10 Ω)
	JP050	JUMPER WIRE	50	
	JP100B	〃	8	
	JP125B	〃	6	
	PB-0188	P. C. B	1	
	SW-0065	LEAF SWITCH	1	S601

P.C.B. LAYOUT

PB-0187 CONTROL P.C.B



REPLACEMENT PARTS LIST

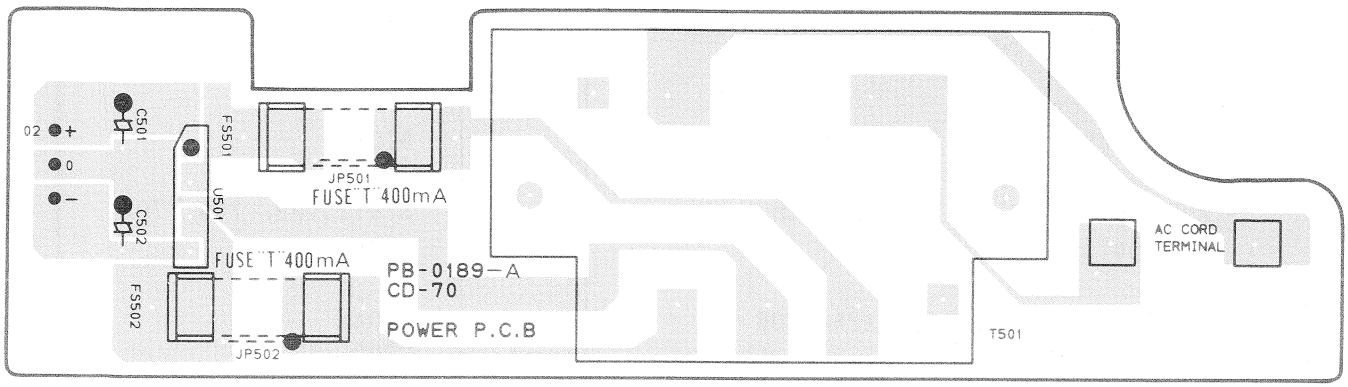
CONTROL P.C.B ASS'Y

REF. NO.	PARTS NO.	NAME	Q'TY	REMARKS
	CXP-5024H-033Q	I. C	1	U701
	DTA144EF	TRANSISTOR	1	Q701
	DTC144EF	〃	1	Q702
	1SS133 or MA-165	DIODE	1	D701
	SW-0017 or SW-0073	TACT SWITCH	5	S701, 702, 703, 704 S705
	CVA50M-2R2	A. CAPACITOR	1	C704
	CVA50M-R22	〃	1	C703
	CVC50Z-103F	C. CAPACITOR	2	C701, 702
	RHD08J-331	CN. RESISTOR	5	R706, 707, 708, 709 R710
	RHD08J-561	〃	1	R716
	RHD08J-103	〃	1	R715
	RHD08J-223	〃	4	R701, 702, 703, 704
	RHD08J-472	〃	1	R705
	JP050	JUMPER WIRE	4	
	SLR-54VR5F	L E D	1	D702
	ZT-0038	L C D	1	
5-1	UR30182	L C D HOLDER	1	
	PB-0187	P. C. B	1/4	

P.C.B. LAYOUT

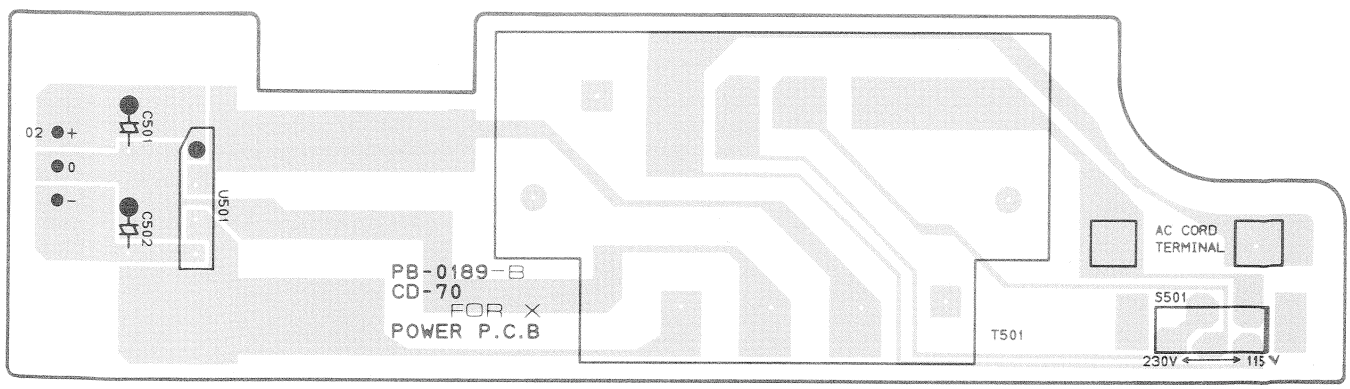
PB-0189A POWER P.C.B

CD-70(US)/(UK)/(E)/(AS)



PB-0189B POWER P.C.B

CD-70(X)



REPLACEMENT PARTS LIST

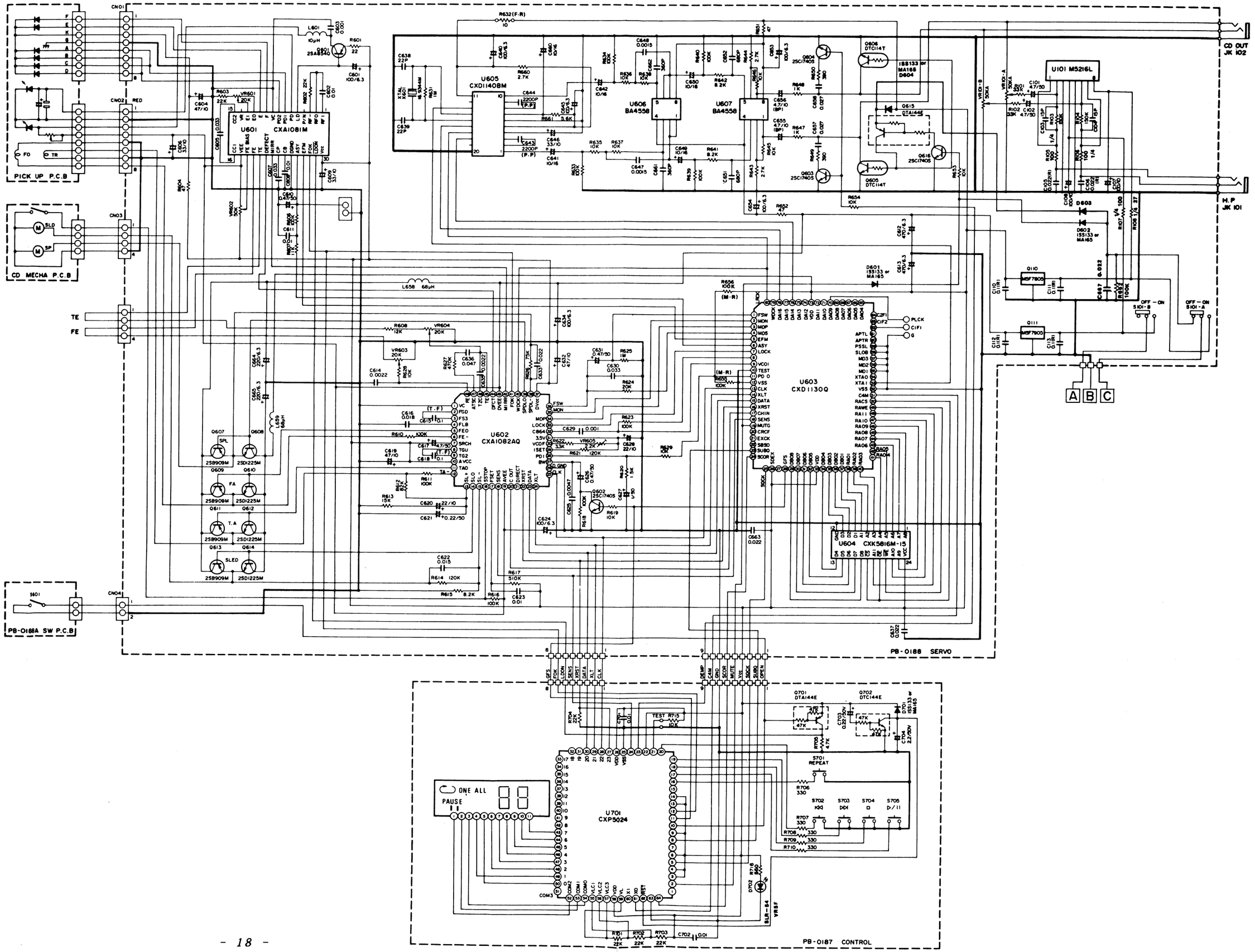
POWER P.C.B ASS'Y

NAME	Q'TY	CD-70(US)	CD-70(UK)	CD-70(E)	CD-70(X)	CD-70(AS)
I. C	1	RS102	←	←	←	←
POWER TRANSFORMER	1	PT-0046	PT-0048	PT-0047	PT-0049	PT-0048
A. CAPACITOR	1	CVA16M-2200	←	←	←	←
A. CAPACITOR	1	CVA16M-1000	←	←	←	←
AC CORD	1	AM-YS-350	AM-YS-352	AM-YS-351	AM-YS-355	AM-YS-353
PRINT CHIP	2	AM-ZE-345	←	←	←	←
JUMPER WIRE	2	JP075B	--	--	JP075B	--
FUSE LINK	2	--	FS-0003	←	--	FS-0003
FUSE HOLDER	4	--	ZT-0003	←	--	ZT-0003
SLIDE SWITCH	1	--	--	--	SW-0109	--
P. C. B	1/4	PB-0189-A	←	←	PB-0189-B	PB-0189-A

DISC DOOR ASS'Y

REF. NO.	NAME	Q'TY	PARTS NO.	REMARKS
4-1	DISC DOOR	1	UR20143-01	
4-2	DISC DOOR WINDOW	1	UR30180-01	
4-3	DISC DOOR GUIDE	1	UR40100	
4-4	MAGNET	1	UR40107	
4-5	MAGNET HOLDER	1	UR40096	
4-6	MAGNET PACKING	1	UR40116	
4-7	MAGNET COVER	1	UR40095	
4-8	MAGNET GUIDE	1	UR40111/1	
108	TAP TITE SCREW	1	TTPB2005SZ	
109	CAMERA SCREW	1	CTAP2008SB	

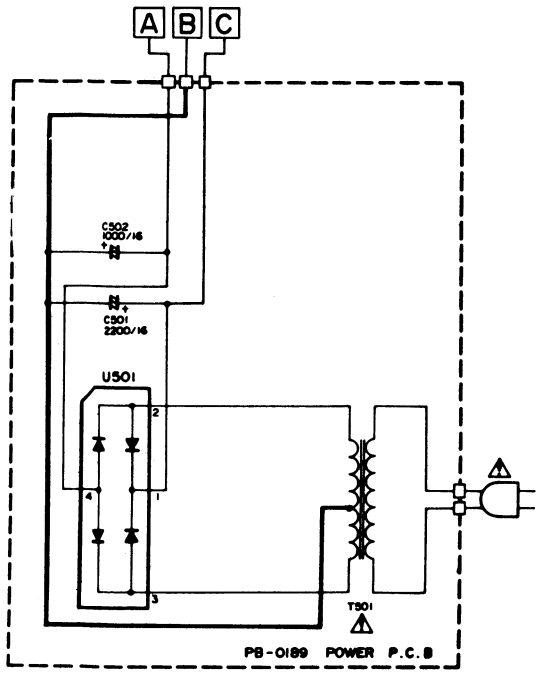
SCHEMATIC DIAGRAM



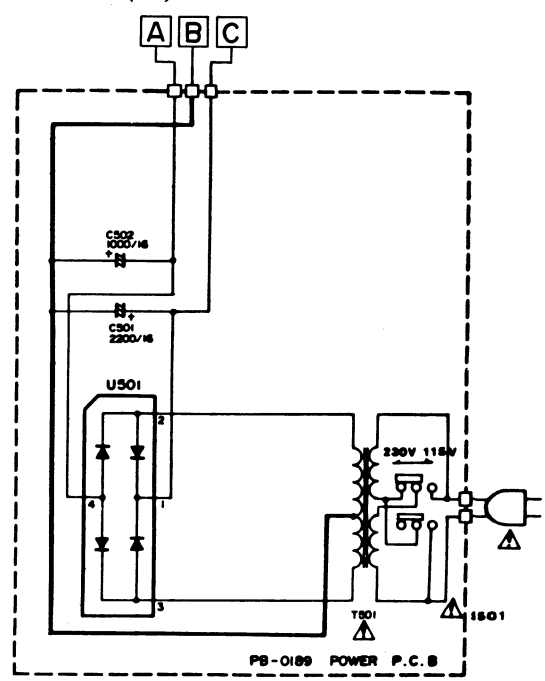
SCHEMATIC DIAGRAM

POWER P.C.B

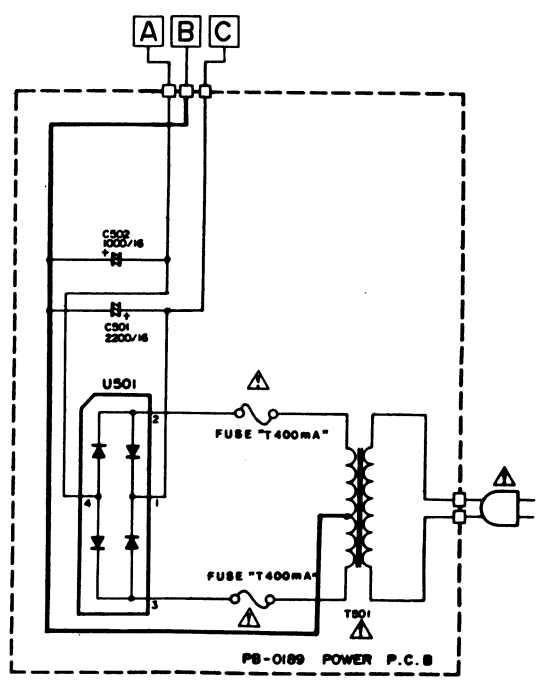
CD-70(US)



CD-70(X)

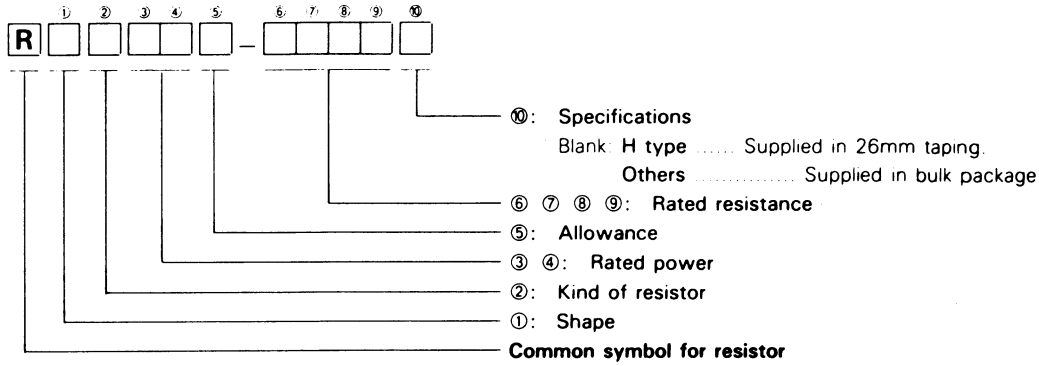


CD-70(UK)/(E)/(AS)

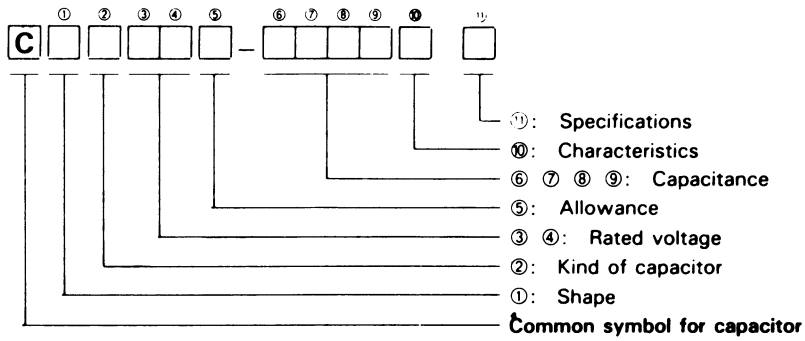


HOW TO READ PARTS NUMBERS

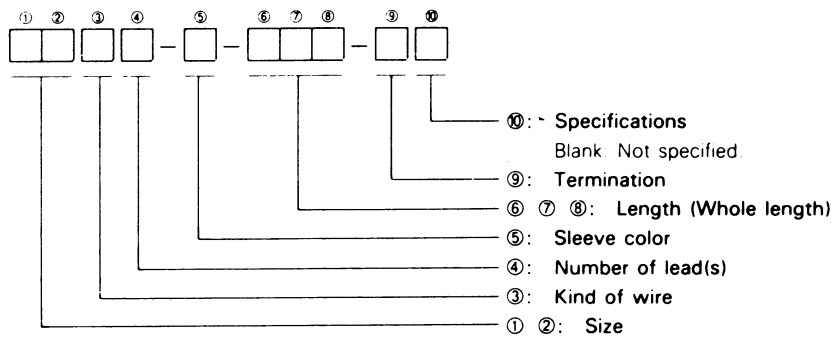
1. Resistor (Fixed resistor)



2. Capacitor



3. Wire



4. Jumper wire